

WHAT IS CLAIMED IS:

1. A method for extracting nucleic acids comprising:
 - setting a first mixed liquid at a certain temperature, wherein the first mixed liquid containing a protease, a chaotropic salt, a surfactant and a sample;
 - adding Diethylene glycol dimethyl ether to the first mixed liquid to get a second mixed liquid after the step of setting a first mixed liquid;
 - absorbing nucleic acids, contained in the second mixed liquid, to a support;
 - washing the support with a solution containing ethanol;
 - recovering the nucleic acids absorbed to the support, by eluting from the support.
2. A method according to claim 1, wherein the sample is a tissue.
3. A method according to claim 1, wherein the sample is an urine.
4. A reagents kit for use in extracting nucleic acids, comprises
 - a protease,
 - a first liquid containing a chaotropic salt and a surfactant;
 - a second liquid containing Diethylene glycol dimethyl ether;
 - a support for absorbing nucleic acids;
 - a third liquid containing ethanol;
 - an elution buffer for eluting the nucleic acids, absorbed to the support, from the support.
5. A reagents kit according to Claim 4, wherein the chaotropic salt is any of Potassium iodide, Guanidine hydrochloride and Guanidine thiocyanate.
6. A reagents kit according to Claim 4, wherein the surfactant is any of Polyoxyethylene(20)sorbitan monolaurate, Polyoxyethylene(20)sorbitan monopalmitate, Polyoxyethylene(20)sorbitan monostearate, Polyoxyethylene(20)

sorbitan monooleate, Polyoxyethylene(20)sorbitan trioleate and Polyoxyethylene(10) isooctylphenyl ether.

7. A reagents kit according to Claim 4, wherein the one of the compounds is any of Ethylene glycol dimethyl ether, Ethylene glycol diethyl ether, Propylene glycol dimethyl ether, Propylene glycol diethyl ether, Diethylene glycol dimethyl ether, Diethylene glycol diethyl ether, Tetrahydrofuran, 1,4-Dioxane, Propylene glycol monomethyl ether acetate, Ethyl lactate, Hydroxyacetone, Acetone, and Methyl ethyl ketone.
8. A reagents kit according to Claim 4, wherein the support comprises any of silica, alumina, zeolite and titanium dioxide.
9. A method for extracting nucleic acids from blood comprising:
 - setting a first mixed liquid at a certain temperature, wherein the first mixed liquid containing a protease, a chaotropic salt, a surfactant and a sample,
 - adding at least one of compounds which are any of aliphatic ether, aliphatic ester, and aliphatic ketone, containing 2 to 10 carbon atoms to the first mixed liquid to get a second mixed liquid after the step of setting a first mixed liquid;
 - absorbing nucleic acids, contained in the second mixed liquid, to a support;
 - washing the support with a solution containing ethanol;
 - recovering the nucleic acids, absorbed to the support, by eluting from the support.
10. A method according to claim 9, wherein the one of the compounds is any of Ethylene glycol dimethyl ether, Ethylene glycol diethyl ether, Propylene glycol dimethyl ether, Propylene glycol diethyl ether, Diethylene glycol dimethyl ether, Diethylene glycol diethyl ether, Tetrahydrofuran, 1,4-Dioxane, Propylene glycol monomethyl ether acetate, Ethyl lactate, Hydroxyacetone, Acetone, and Methyl ethyl ketone.

11. A reagents kit for use in extracting nucleic acids from blood, comprises
 - a protease,
 - a first liquid containing a chaotropic salt and a surfactant;
 - a second liquid containing at least one of compounds which are any of aliphatic ether, aliphatic ester, and aliphatic ketone, containing 2 to 10 carbon atoms;
 - a support for absorbing nucleic acids,
 - a third liquid containing ethanol;
 - an elution buffer for eluting the nucleic acids, absorbed to the support, from the support.
12. A reagents kit according to Claim 11, wherein the one of the compounds is any of Ethylene glycol dimethyl ether, Ethylene glycol diethyl ether, Propylene glycol dimethyl ether, Propylene glycol diethyl ether, Diethylene glycol dimethyl ether, Diethylene glycol diethyl ether, Tetrahydrofuran, 1,4-Dioxane, Propylene glycol monomethyl ether acetate, Ethyl lactate, Hydroxyacetone, Acetone, and Methyl ethyl ketone.
13. A method for extracting nucleic acids comprising:
 - lysing cells for getting a first mixed liquid;
 - adding at least one of compounds which are any of aliphatic ether, aliphatic ester, and aliphatic ketone, containing 2 to 10 carbon atoms to the first mixed liquid for getting a second mixed liquid;
 - absorbing nucleic acids, contained in the second mixed liquid, to a support by letting the second mixed liquid passing through a vessel containing the support both a way by sucking force and a substantially opposite way;
 - washing the support;
 - eluting the nucleic acids, absorbed to the support, from the support.
14. A method according to claim 13, wherein a liquid passes through the vessel containing the support both a way by sucking force and a substantially opposite way during at least one of the washing or the eluting.

15. A method according to claim 13, wherein the one of the compounds is any of Ethylene glycol dimethyl ether, Ethylene glycol diethyl ether, Propylene glycol dimethyl ether, Propylene glycol diethyl ether, Diethylene glycol dimethyl ether, Diethylene glycol diethyl ether, Tetrahydrofuran, 1,4-Dioxane, Propylene glycol monomethyl ether acetate, Ethyl lactate, Hydroxyacetone, Acetone, and Methyl ethyl ketone.
16. A method for extracting nucleic acids comprising:
 - lysing cells for getting a first mixed liquid;
 - adding at least one of compounds which are any of aliphatic ether, aliphatic ester, and aliphatic ketone, containing 2 to 10 carbon atoms to the first mixed liquid for getting a second mixed liquid;
 - transferring the second mixed liquid into a column containing a support;
 - absorbing nucleic acids, contained in the second mixed liquid, to a support by sucking the second mixed liquid from the column;
 - washing the support by injecting a washing solution into the column and sucking the washing solution from the column;
 - eluting the nucleic acids, absorbed to the support, from the support by injecting a eluting solution into the column and sucking the eluting solution from the column.
17. A method according to claim 16, wherein the one of the compounds is any of Ethylene glycol dimethyl ether, Ethylene glycol diethyl ether, Propylene glycol dimethyl ether, Propylene glycol diethyl ether, Diethylene glycol dimethyl ether, Diethylene glycol diethyl ether, Tetrahydrofuran, 1,4-Dioxane, Propylene glycol monomethyl ether acetate, Ethyl lactate, Hydroxyacetone, Acetone, and Methyl ethyl ketone.
18. A reagents kit for use in extracting nucleic acids, comprises
 - a proteolytic enzyme,
 - a reaction solution containing a chaotropic salt and a surfactant and supplied into a sample;

an additive solution containing at least one of compounds which are any of aliphatic ether, aliphatic ester, and aliphatic ketone, containing 2 to 10 carbon atoms, added into the reaction solution supplied into the sample;

a support for absorbing nucleic acids;

a washing buffer for washing the support;

an elution buffer for eluting the nucleic acids, absorbed to the support, from the support.

19. A reagents kit according to Claim 18, wherein the one of the compounds is any of Ethylene glycol dimethyl ether, Ethylene glycol diethyl ether, Propylene glycol dimethyl ether, Propylene glycol diethyl ether, Diethylene glycol dimethyl ether, Diethylene glycol diethyl ether, Tetrahydrofuran, 1,4-Dioxane, Propylene glycol monomethyl ether acetate, Ethyl lactate, Hydroxyacetone, Acetone, and Methyl ethyl ketone.
20. A reagents kit for use in extracting nucleic acids, comprises
 - a proteinase K,
 - a first liquid containing Guanidine hydrochloride and Polyoxyethylene(10) isooctylphenyl ether;
 - a second liquid containing Diethylene glycol dimethyl ether;
 - a support for absorbing nucleic acids;
 - a third liquid containing potassium acetate and ethanol;
 - an elution solution for eluting the nucleic acids, absorbed to the support, from the support.